California Central Valley Steelhead

Hatchery Program Assessment

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California Central Valley Steelhead ESU

- CCV steelhead included in the ESU
  - Coleman National Fish Hatchery steelhead program
  - Feather River Hatchery steelhead program
  - And other natural populations with no hatchery programs

- CCV steelhead not included in the ESU
  - Nimbus Hatchery steelhead program
  - Mokelumne River Hatchery steelhead program

California Central Valley Steelhead ESU programs

non-ESU programs

California Central Valley Steelhead ESU

Population area (hatchery stock)	Isolated or integrated	Program type	Purpose	Production goal	Year initiated
Artificial Propagation Programs that Produce Fish Included in ESU					
Coleman N.F.H. (Battle Creek)	Integrated	Smolt	Mitigation	600,000	1947
Feather River Hatchery	Integrated	Smolt	Mitigation	400,000	1967
Artificial Propagation Programs that Produce Fish NOT Included in ESU					
Nimbus Hatchery (American R.)	Integrated	Smolt	Mitigation	430,000	1956
Mokelumne River Hatchery	Integrated	Smolt	Mitigation	100,000	1964

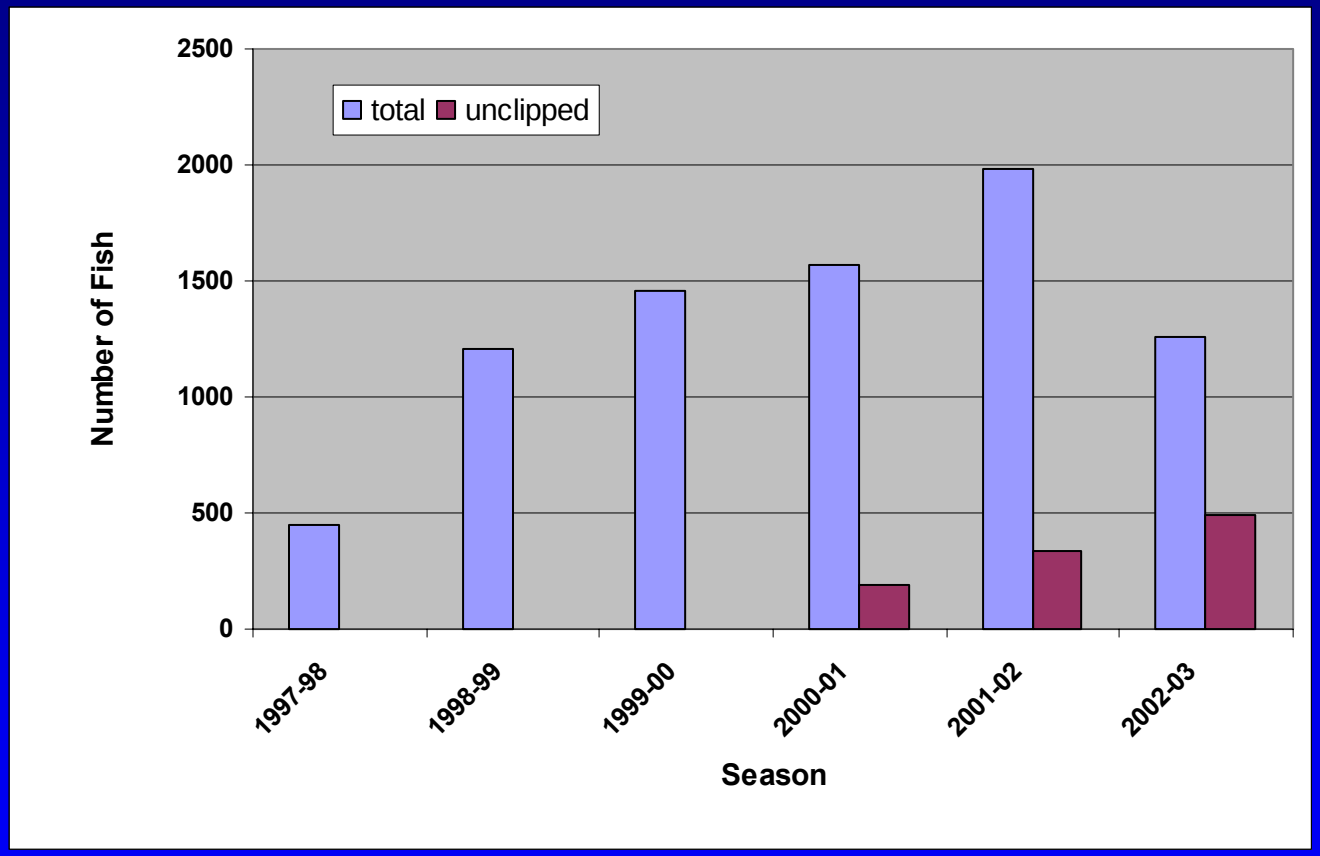
Viable Salmon Populations

Abundance
Productivity
Spatial Structure
Diversity

Effect on Abundance

- Coleman NFH and Feather River Hatchery steelhead programs were established to enhance recreational fishing. There is also a recognized mitigation responsibility attached to the programs.
- Both programs increase the number of steelhead to offset some of the loss of steelhead production from above Keswick and Oroville dams.
- There is selective fishing within the mainstem Sacramento River and in the Feather River on hatchery stocks.
- All hatchery steelhead returning to the facilities are used for broodstock or culled from the population. Coleman NFH may use some hatchery steelhead to continue supplementation in upper Battle Creek.

Steelhead Passage in upper Battle Creek



Effect on Diversity

- Coleman NFH and Feather River Hatchery incorporate natural steelhead into their programs.
- Both populations are grouped genetically with the upper Sacramento River basin steelhead.
- Both systems are dominated by hatchery fish.

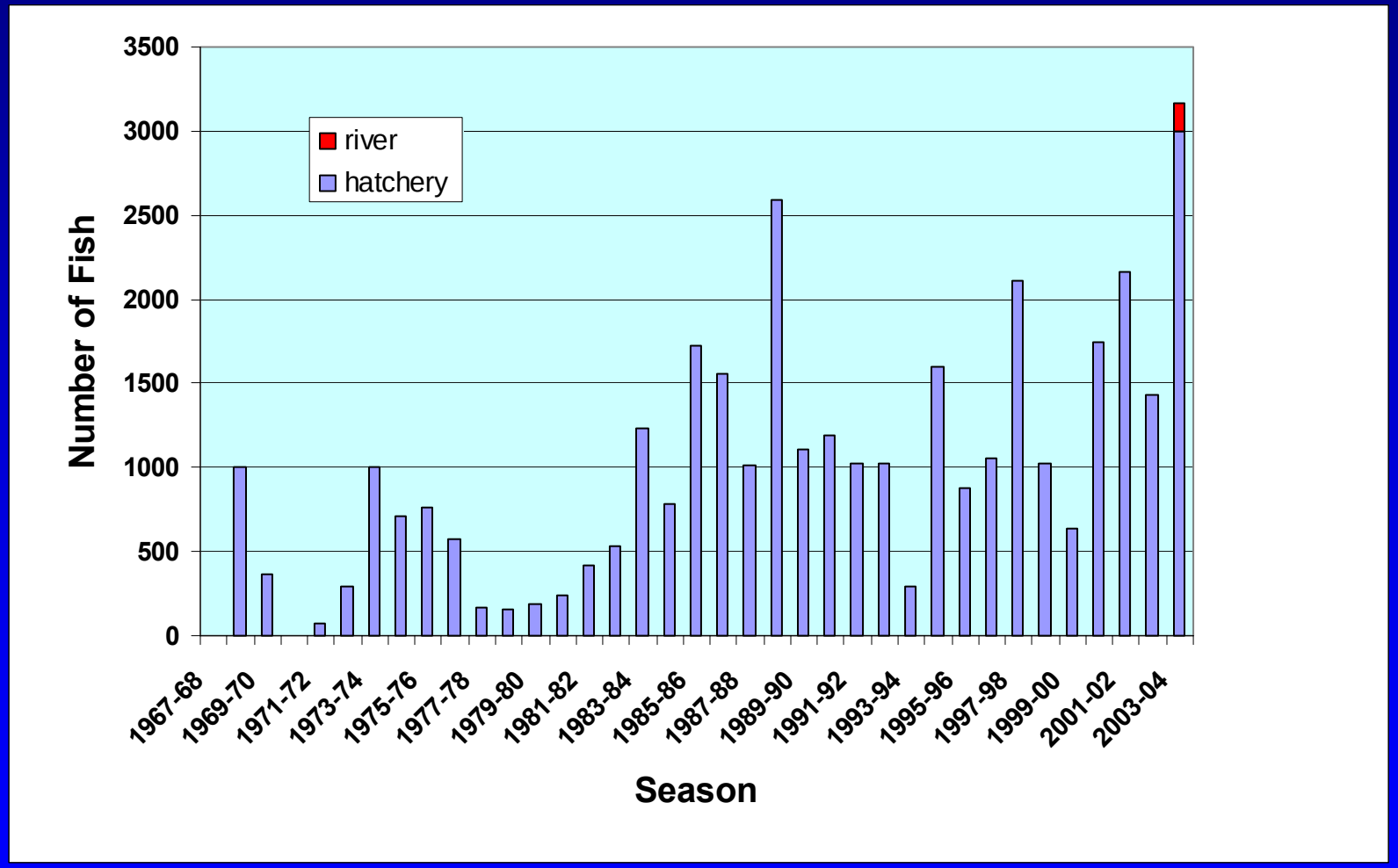
Effect on Productivity

- Coleman NFH is conducting a study on hatchery steelhead productivity relative to that of the natural steelhead in Battle Creek.

- There is limited habitat in the Feather River for natural spawning. High fish returns will compete for habitat; early redds may be dug up or superimposed.

- Spawning capacity is limited in both the Feather River and lower Battle Creek.

Steelhead Returns to Feather River Hatchery, 1967-2004



Effect on Spatial Structure

- Coleman NFH is coordinating hatchery actions with plans for upper Battle Creek Restoration. The hatchery currently bypasses all natural steelhead into upper Battle Creek. Hatchery steelhead are limited to lower Battle Creek for the most part, but some have been bypassed since 1995.

- Feather River Hatchery steelhead program does not affect population spatial structure.

Effect of Artificial Propagation on VSP Attributes California Central Valley Steelhead

Viability Criteria	BRT VSP Risk Score	Decreases Risk	Neutral or Uncertain	Increases Risk
Abundance	4.4	√		
Productivity	4.3		√	
Spatial Structure	4.2		√	
Diversity	3.6		√	

Recommendation: No Change to BRT's Finding

What is the biological status of the ESU in total (including hatchery stocks/populations, mixed populations, and natural populations)?

California Central Valley Steelhead	Biological Status for the ESU in-total		
	"in danger of extinction throughout all or a significant portion of its range"	"likely to become endangered within the foreseeable future throughout all or a significant portion of its range"	Neither "in danger of extinction…" or "likely to become endangered…"
BRT's findings for the ESU natural components	66%	34%	0%